

1 WHAT IS CLAIMED IS:

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1. A timing controller for a liquid-crystal display panel comprising:

10 a data enable signal detection circuit which detects a data enable signal applied to the timing controller; and

15 a timing generating circuit which controls a display timing of image data to be displayed on the liquid-crystal display panel on the basis of the data enable signal detected by the data enable signal detection circuit.

20 2. The timing controller as claimed in claim 1, wherein the timing generating circuit comprises a first circuit which generates, from the data enable signal, a first start pulse which starts driving each data line of the liquid-crystal display panel, and a second circuit which generates, from the data enable signal, a second start pulse which starts driving scanning lines of the liquid-crystal display panel.

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35 3. The timing controller as claimed in claim 1, wherein the timing generating circuit comprises a circuit part which detects a beginning of each frame on the basis of the data enable signal.

1 4. The timing controller as claimed in
claim 1, further comprising:
 a synchronizing signal detection circuit
which detects vertical and horizontal synchronizing
5 signals; and
 a pseudo-data-enable signal generating
circuit which generates a pseudo-data-enable signal
when the synchronization signal detection circuit
detects the vertical and horizontal synchronizing
10 signals while the data enable signal detection circuit
does not detect the data enable signal,
 wherein the timing generating circuit
controls the display timing of image data on the basis
of the pseudo-data-enable signal.
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 5. The timing controller as claimed in
20 claim 1, further comprising:
 a synchronizing signal detection circuit
which detects vertical and horizontal synchronizing
signals; and
 a protection circuit which generates a
25 pseudo-data-enable signal when the data enable signal
and the vertical and horizontal synchronizing signals
are not detected,
 wherein the timing generating circuit
controls the display timing of image data on the basis
30 of the pseudo-data-enable signal.

35 6. A method of controlling a display timing
for a liquid-crystal display panel, the method
comprising the steps of:

1 (a) detecting a data enable signal applied
together with image data; and

 (b) controlling the display timing of the
image data to be displayed on the liquid-crystal
5 display panel on the basis of the data enable signal
detected by the step (a).

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7. A liquid-crystal display device
comprising:

 a liquid-crystal display panel having signal
lines and scanning lines;

15 a data driver which drives the signal lines;
 a gate driver which drives the scanning
lines; and

 a timing controller controlling a display
timing of image data to be displayed on the liquid-
20 crystal display panel,

 the timing controller comprising:

 a data enable signal detection circuit which
detects a data enable signal applied to the timing
controller; and

25 a timing generating circuit which controls
the display timing on the basis of the data enable
signal detected by the data enable signal detection
circuit.

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8. The liquid-crystal display device as
claimed in claim 7, wherein the timing generating
35 circuit comprises a first circuit which generates,
from the data enable signal, a first start pulse which
starts driving each of the data lines, and a second

1 circuit which generates, from the data enable signal,
a second start pulse which starts driving the scanning
lines.

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9. The liquid-crystal display device as
claimed in claim 7, wherein the timing generating
10 circuit comprises a circuit part which detects a
beginning of each frame on the basis of the data
enable signal.

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10. The liquid-crystal display device as
claimed in claim 7, further comprising:

a synchronizing signal detection circuit
20 which detects vertical and horizontal synchronizing
signals; and

a pseudo-data-enable signal generating
circuit which generates a pseudo-data-enable signal
when the synchronization signal detection circuit
25 detects the vertical and horizontal synchronizing
signals while the data enable signal detection circuit
does not detect the data enable signal,

wherein the timing generating circuit
controls the display timing of image data on the basis
30 of the pseudo-data-enable signal.

35 11. The liquid-crystal display device as
claimed in claim 7, further comprising:

a synchronizing signal detection circuit

1 which detects vertical and horizontal synchronizing
signals; and

 a protection circuit which generates a
pseudo-data-enable signal when the data enable signal
5 and the vertical and horizontal synchronizing signals
are not detected,

 wherein the timing generating circuit
controls the display timing of image data on the basis
of the pseudo-data-enable signal.

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 12. The liquid-crystal display device as
15 claimed in claim 7, further comprising:

 a synchronizing signal detection circuit
which detects vertical and horizontal synchronizing
signals;

 a pseudo-data-enable signal generating
20 circuit which generates a first pseudo-data-enable
signal when the synchronization signal detection
circuit detects the vertical and horizontal
synchronizing signals while the data enable signal
detection circuit does not detect the data enable
25 signal; and

 a protection circuit which generates a
second pseudo-data-enable signal when the data enable
signal and the vertical and horizontal synchronizing
signals are not detected,

30 wherein the timing generating circuit
controls the display timing of image data on the basis
of any of the data enable signal, the first pseudo-
data-enable signal and the second pseudo-data-enable
signal.

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